

Operational Checklist for Local Health Departments, Local Vector Control Agencies, and California Department of Public Health in the Event of Local Dengue, Chikungunya, or Zika Transmission

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This document provides a summary of roles and responsibilities of local and state California agencies that would be involved should local transmission of dengue, chikungunya, or Zika be detected. More detailed information and resources may be found in [CDPH Guidance for Surveillance of and Response to Invasive Aedes Mosquitoes and Dengue, Chikungunya, and Zika in California](https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/InvasiveAedesSurveillanceandResponseinCA.pdf)

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Trigger Level 1: Single suspect case of local transmission or presumed viremic blood donor (Case-patient should have confirmatory or probable laboratory results)

Local Health Department

- Notify California Department of Public Health (CDPH) Vector Borne Disease Section by email (VBDS@cdph.ca.gov) or phone (916-552-9730), or if after business hours, call CDPH duty officer (916-328-3605)
- Inform CDPH if case of suspected local transmission was identified through blood donor screening
- Assess needs for technical, risk communication, vector control, and logistical support
- Initiate epidemiologic investigation and enhance case surveillance to identify other possible cases of local transmission
 - Interview case-patient to determine timing of potential exposure, rule out sexual contact and other exposures with a returned traveler or visitor from a Zika-affected area, ascertain history of mosquito bites, and assess geographic area(s) for potential exposure (e.g., home, work, etc.)
 - Interview case-patient's household members and close contacts (Appendix A) to identify other persons with recent (past 4-21 days) illness that includes rash, fever, joint pain, muscle aches, or conjunctivitis
 - Administer door-to-door questionnaire (Appendix B) to determine if any neighbors within 150-yards (or other boundary, as appropriate) of case-patient's home have recently (past 4–21 days) had rash, fever, joint pain, muscle aches, conjunctivitis, or other symptoms
 - For persons (e.g., family members, neighbors) reporting recent symptoms suggestive of chikungunya, dengue, or Zika, coordinate collection of urine and serum specimens and facilitate testing at the local or state public health laboratory (see [CDPH's Zika Laboratory Testing Guidance](https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/ZikaLaboratoryTestingGuidance_VRDL.pdf), https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/ZikaLaboratoryTestingGuidance_VRDL.pdf)
 - Advise patient(s) to take all steps to avoid mosquito bites for 14 days after illness onset to minimize the risk of infecting mosquitoes and furthering local transmission

- Notify the local medical community, including hospitals and laboratories, to look for and encourage testing of all suspected dengue, chikungunya, Zika, and other exotic mosquito-borne infections, regardless of recent travel history, and to report them as soon as possible; discuss the issuance of a California Health Alert Network (CAHAN) notification with CDPH
- Immediately notify the local vector control agency of all cases, including patients' residential addresses, symptom onset dates, and local travel history
- Work collaboratively with CDPH and the local vector control agency to issue a joint media release ensuring patient confidentiality. See media release template in Appendix B of [CDPH Guidance document](#). Engage the public in detecting and reporting daytime-biting mosquito activity to the local vector control agency, reducing mosquito larval habitats on their property, and protecting themselves from mosquito bites.

Local Vector Control Agency

- In coordination with the local health department, enhance larval and adult mosquito surveillance and control within 150-yards (or other boundary, as appropriate) of case-patient's home (maintaining patient confidentiality), and in other locations where exposure to invasive *Aedes* mosquitoes may have occurred
 - Determine presence of invasive *Aedes* (if not previously documented) using traps and/or aspirators
 - Send female *Aedes* mosquitoes to UC Davis Arbovirus Research and Training (DART) laboratory for arboviral testing (instructions available in Appendix F of [Guidance for Surveillance of and Response to Invasive Aedes Mosquitoes and Dengue, Chikungunya, and Zika in California](#))
 - Apply larvicides and/or adulticides as appropriate
- Distribute public relations materials (such as door hangers) to raise awareness about invasive *Aedes* mosquitoes, the viruses they can transmit, symptoms of disease, the importance of seeking healthcare for testing if symptomatic, and use of personal protective measures
- Continue to engage the public in detecting and reporting daytime-biting mosquitoes, reducing larval habitats on their properties, and taking personal protective measures to prevent mosquito bites
- Explore focused community interventions to disrupt breeding grounds, such as tire collections and waste removal in at-risk areas. Leverage partnerships with local governments and non-profits for support.

California Department of Public Health

- Activate state incident command structure
- Follow Action Steps listed in Appendix B-1: Zika CDC Draft Interim Response Plan
- Evaluate need for federal assistance
- Deploy targeted communications, surveillance, and monitoring programs for pregnant women in the county/jurisdiction

Trigger Level 2: Single confirmed case of local transmission

Local Health Departments

- All the steps listed above
- Intensify surveillance for human cases in a 150-yard radius (or other boundary, as appropriate) around case-patient's home
- Increase laboratory capacity to test (or coordinate testing at state public health laboratory) the following persons living within 150-yard radius of case-patient's home:
 - All pregnant women
 - Persons with symptoms consistent with dengue, chikungunya, or Zika
- Ensure that state and local maternal and child health and birth defects programs are integrated into Zika virus planning and response activities
- Issue joint media release with CDPH and the local vector control agency (ensuring patient confidentiality) to increase attention to Zika virus transmission risk and personal protection measures

Local Vector Control Agency

- All the steps listed above
- Intensify larval and adult mosquito control in a 150-yard radius (or other boundary, as appropriate) around case-patient's home
- Conduct rapid insecticide resistance study for local mosquito populations

California Department of Public Health

- Follow Action Steps listed in Appendix B-1: Zika CDC Draft Interim Response Plan
- Notify Centers for Disease Control and Prevention (CDC) and blood collection centers in jurisdiction of confirmed case of local transmission, and include if case was identified through blood donor screening
- Review CDC toolkit for investigation of transfusion-transmitted infection
- Evaluate need for federal assistance, including invitation for CDC to send a CDC Emergency Response Team
- Ensure that state and local maternal and child health and birth defects programs are integrated into Zika virus planning and response activities
- Monitor local news stories and social media postings to determine if information is accurate, identify messaging gaps, and make adjustments to communications as needed

Trigger Level 3: Confirmed multi-person local transmission (Zika transmission area)

Local Health Departments

- All the steps listed above
- Together with CDPH and local vector control agency, determine geographic boundaries for area of active transmission that will be used for aggressive response efforts
- Intensify county-wide (or jurisdiction-wide) outreach (newspaper, radio, social media, call centers)
- Intensify county-wide (or jurisdiction-wide) surveillance for human cases (e.g., clinician outreach, syndromic surveillance in hospitals, etc.)
- Increase laboratory capacity to test (or coordinate testing at state public health laboratory) the following persons living or working within area of active transmission:
 - All pregnant women
 - Persons with symptoms consistent with dengue, chikungunya, or Zika
- Implement intervention plans for high-risk populations (pregnant women). Options to consider include mosquito-proofing homes through installation of screens and provision of air-conditioning if necessary, as well as household vector control, and distribution of Zika Prevention Kits.

Local Vector Control Agency

- All the steps listed above
- Intensify and expand mosquito control efforts
 - Tailor control strategies, including both adult and larval control methods, to local needs
 - Consider ground application and/or aerial spraying
 - Repeat applications as necessary to achieve adequate control
 - Communicate with local elected officials, local health department, and CDPH to craft outreach messages regarding large-scale vector control campaign. Utilize local media and social media to disseminate messages.
- For areas where A/C and screens are not widely available, consider offering Indoor Residual Spraying (IRS) to vulnerable homes
- Monitor effectiveness of vector control efforts through mosquito trapping surveillance

California Department of Public Health

- Follow Action Steps listed in Appendix B-1: Zika CDC Draft Interim Response Plan
- Together with local health department and vector control agency, determine geographic boundaries for area of active transmission that will be used for aggressive response efforts
- Notify CDC to update interactive map of areas with risk and active transmission of Zika
- Advise pregnant women to postpone travel to areas with active risk for transmission, or if they must travel, to consistently follow steps to prevent mosquito bites
- Alert all blood collection centers in California about active transmission area

- Advise blood centers collecting within affected area to stop collections OR implement Zika NAT screening for all blood donors OR implement pathogen reduction technology per Food and Drug Administration (FDA) guidance
- Advise blood centers outside of affected area to include the active transmission area in donor travel and sexual exposure deferrals
- If multiple jurisdictions are affected, coordinate and lead the regional public health response including surveillance, investigation, and control
- Notify neighboring jurisdictions and states, depending on extent of disease transmission
- Coordinate centralized regular media updates on the situation and risks

Questionnaire for Contact to Case-patient with Locally-Acquired Zika Infection

Next, I'd like to ask if you've had any of the following symptoms during XX/XX/XX through XX/XX/XX. For this, we mean new symptoms, not chronic, baseline symptoms.

Symptoms	First date with this symptom	For which dates did you have this symptom?	Symptom info/description
10. Fever <input type="checkbox"/> Yes <input type="checkbox"/> No	___/___/___		
11. Rash <input type="checkbox"/> Yes <input type="checkbox"/> No	___/___/___		Was the rash itchy? Where was the rash located?
12. Conjunctivitis (redness in whites of eyes) <input type="checkbox"/> Yes <input type="checkbox"/> No	___/___/___		
13. Joint pain <input type="checkbox"/> Yes <input type="checkbox"/> No	___/___/___		
14. Other symptoms (please list) <input type="checkbox"/> Yes <input type="checkbox"/> No	___/___/___ ___/___/___ ___/___/___		
If 'yes' for fever, rash, conjunctivitis, or joint pain:			
15. Did you seek medical care for the symptoms?	<input type="checkbox"/> Yes <input type="checkbox"/> No	15a. If yes, date of visit: ___/___/___	15b. Diagnosis from clinician:

Travel

16. In which country were you born?

17. Have you ever lived outside the U.S.? Yes No
If yes, please list countries and dates:

Country: _____ Start date: ___/___/___ End date: ___/___/___

Travel		
18. Did you travel outside the United States since XXXX? <input type="checkbox"/> Yes <input type="checkbox"/> No		
If yes, please list countries and travel dates:		
Country: _____	Start date: __/__/__	End date: __/__/__
Country: _____	Start date: __/__/__	End date: __/__/__
Country: _____	Start date: __/__/__	End date: __/__/__
Country: _____	Start date: __/__/__	End date: __/__/__
Country: _____	Start date: __/__/__	End date: __/__/__
Country: _____	Start date: __/__/__	End date: __/__/__

Medical Information and Specimen Collection
<p>Thank you for your willingness to participate in this survey. Based on your responses, we would like to offer Zika testing if you allow blood and urine samples to be collected. Each person who is tested will be given the results of their test, and all results will be kept confidential. Would you like to have your blood and urine tested for Zika?</p> <p>If NO blood or urine specimen is consented for: Thank you again for your willingness to provide the information. If we have any additional questions, is it okay to contact you again?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No (If yes, verify contact details)</p>
<p>If blood or urine specimen is consented for, complete specimen collection form, and ask these additional questions: I'd like to ask you a few more questions about your health so we can better understand your test results.</p>
<p>To the best of your knowledge, have you ever received any of these vaccines? (these are vaccines that may be given to persons who travel out of the country)</p> <p>19. Yellow fever vaccine <input type="checkbox"/> No <input type="checkbox"/> Unsure, but does not think so <input type="checkbox"/> Yes, year of last dose _____</p> <p>20. Japanese encephalitis vaccine <input type="checkbox"/> No <input type="checkbox"/> Unsure, but does not think so <input type="checkbox"/> Yes, year of last dose _____</p> <p>21. Tick-borne encephalitis vaccine <input type="checkbox"/> No <input type="checkbox"/> Unsure, but does not think so <input type="checkbox"/> Yes, year of last dose _____</p>
<p>22. Has your doctor told you that you have any medical conditions that limit your ability to fight infections?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown</p>
<p>23. Are you taking any medications that suppress your immune system?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown</p>
<p>24. In the past 2 months, did you receive a blood transfusion or organ transplant?</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown</p>

Medical Information and Specimen Collection

25. We are asking this last question because Zika can be spread through unprotected sex (sex without a condom). For this question, I will ask you to read it, show you a list of countries, and ask you to point to the answer.

During the time XXXX through now, have you ever had unprotected sex with someone who had recently returned from any of these countries where Zika has been spreading? For the purpose of this question, sex is defined as vaginal sex, anal sex, oral sex, or the sharing of sex toys. By recently returned, we mean a man who had returned within 6 months before the time you had unprotected sex or a woman who had returned within 2 months before the time you had unprotected sex.

Your Answer: Yes No Don't know

Obtain clinical specimens if not already obtained:

- If person **HAS NOT had any of the 4 symptoms** since XX/XX/XXX:
 - Obtain serum
- If person **HAS HAD ANY of the 4 symptoms** since XX/XX/XXX:
 - Obtain serum
 - Obtain urine if the person's symptom onset was less than 14 days ago

Thank you very much for your willingness to answer these questions and provide blood and urine samples. We will next contact you directly about your results of the tests. It may take several weeks to get the final results.

Urine Date of Collection ___/___/____ Sample ID number _____

Serum Date of Collection ___/___/____ Sample ID number _____

No specimens collected

APPENDIX B

Zika Community Survey — Household Enrollment Form

Zika Community Survey — Household Enrollment Form	
Household ID:	Date:
Home Address: Street address: _____ City: _____ State: _____ ZIP: _____ County: _____ (Best way to contact them in the future) Phone: _____ or e-mail: _____	
Home Type: <input type="checkbox"/> Single family dwelling <input type="checkbox"/> Duplex or four-plex <input type="checkbox"/> Apartment or condo <input type="checkbox"/> Mobile home <input type="checkbox"/> Other (specify)	
<p>Hello, my name is [YOUR NAME] and I work at the [HEALTH DEPT NAME]. The health department is conducting a survey in this community because a locally acquired case of Zika has been reported in the area. You might have heard about Zika, which is an infectious disease transmitted by mosquitoes. To prevent the spread of Zika, we are trying to determine if additional people in the community have been infected, and where they may have been exposed to mosquitoes carrying the virus. We would like to ask for your household's participation in this survey, which will take approximately X minutes per person. If you agree to take part, you and the other members of your household will be asked questions about exposure to mosquito bites, travel, and any symptoms consistent with Zika. All the information you share will be kept confidential. Would your household be willing to participate in this survey?</p> <p>Household: <input type="checkbox"/> Consented to participate <input type="checkbox"/> Did NOT consent to participate</p>	
<p>Can you tell me the names of all the people who stayed in your house for at least two nights per week since XXXX until now?</p> <p>List first and last name for each person and verify that they have been at this address for the last month. Attach additional pages if necessary.</p>	

No.	Name of Resident	Age	Age Type (*Record in months if child <2 years)	Sex	Blood specimen label	Urine specimen label	If no specimen collected, reason for non- participation
01			<input type="checkbox"/> years <input type="checkbox"/> months	<input type="checkbox"/> F <input type="checkbox"/> M			<input type="checkbox"/> Consent refused <input type="checkbox"/> Parental consent refused <input type="checkbox"/> Could not be reached
02			<input type="checkbox"/> years <input type="checkbox"/> months	<input type="checkbox"/> F <input type="checkbox"/> M			<input type="checkbox"/> Consent refused <input type="checkbox"/> Parental consent refused <input type="checkbox"/> Could not be reached
03			<input type="checkbox"/> years <input type="checkbox"/> months	<input type="checkbox"/> F <input type="checkbox"/> M			<input type="checkbox"/> Consent refused <input type="checkbox"/> Parental consent refused <input type="checkbox"/> Could not be reached
04			<input type="checkbox"/> years <input type="checkbox"/> months	<input type="checkbox"/> F <input type="checkbox"/> M			<input type="checkbox"/> Consent refused <input type="checkbox"/> Parental consent refused <input type="checkbox"/> Could not be reached
05			<input type="checkbox"/> years <input type="checkbox"/> months	<input type="checkbox"/> F <input type="checkbox"/> M			<input type="checkbox"/> Consent refused <input type="checkbox"/> Parental consent refused <input type="checkbox"/> Could not be reached
06			<input type="checkbox"/> years <input type="checkbox"/> months	<input type="checkbox"/> F <input type="checkbox"/> M			<input type="checkbox"/> Consent refused <input type="checkbox"/> Parental consent refused <input type="checkbox"/> Could not be reached

No.	Name of Resident	Age	Age Type (*Record in months if child <2 years)	Sex	Blood specimen label	Urine specimen label	If no specimen collected, reason for non-participation
07			<input type="checkbox"/> years <input type="checkbox"/> months	<input type="checkbox"/> F <input type="checkbox"/> M			<input type="checkbox"/> Consent refused <input type="checkbox"/> Parental consent refused <input type="checkbox"/> Could not be reached
08			<input type="checkbox"/> years <input type="checkbox"/> months	<input type="checkbox"/> F <input type="checkbox"/> M			<input type="checkbox"/> Consent refused <input type="checkbox"/> Parental consent refused <input type="checkbox"/> Could not be reached
09			<input type="checkbox"/> years <input type="checkbox"/> months	<input type="checkbox"/> F <input type="checkbox"/> M			<input type="checkbox"/> Consent refused <input type="checkbox"/> Parental consent refused <input type="checkbox"/> Could not be reached
10			<input type="checkbox"/> years <input type="checkbox"/> months	<input type="checkbox"/> F <input type="checkbox"/> M			<input type="checkbox"/> Consent refused <input type="checkbox"/> Parental consent refused <input type="checkbox"/> Could not be reached

Zika Community Survey — Individual Questionnaire

Zika Community Survey – Individual Questionnaire
HH ID: _____
Interview Information Interviewer Name (First, Last): _____ State/Local/Territorial Health Department: _____ Language survey was conducted in: _____ Date of interview: _____ Who answered on behalf of individual? <input type="checkbox"/> Self <input type="checkbox"/> Parent <input type="checkbox"/> Other: _____
Thank you for participating in this survey. I would like to ask you some questions about potential exposures that you may have had to Zika virus.
Exposures
First, I would like to ask you about your time outdoors or potential exposure to mosquitoes.
Since XXXX, how much time on average have you spent outdoors each day? <input type="checkbox"/> less than 1 hour <input type="checkbox"/> 1-4 hours <input type="checkbox"/> 5-10 hours <input type="checkbox"/> more than 10 hours <input type="checkbox"/> Don't know
How often did you wear mosquito repellent when you were outdoors for 15 minutes or more? <input type="checkbox"/> Always <input type="checkbox"/> Most of the time <input type="checkbox"/> Sometimes <input type="checkbox"/> Never <input type="checkbox"/> Don't know
Since XXXX, did you get any mosquito bites? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know
Do you use an air conditioner at home? <input type="checkbox"/> Yes <input type="checkbox"/> Have A/C but do not use <input type="checkbox"/> Do not have A/C
For windows and outside doors that you have left open this summer, how many of these have screens? <input type="checkbox"/> All <input type="checkbox"/> Most <input type="checkbox"/> Some <input type="checkbox"/> None <input type="checkbox"/> Don't know <input type="checkbox"/> Never leave windows/doors open
In the past three months, have you seen mosquitoes in your home? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know
Resident's Travel and Potential Flavivirus exposure
Next, I would like to ask you about if you might have been exposed to Zika virus or related viruses before.
Did you travel outside the United States (or to a US territory: Puerto Rico, USVI, Am Samoa) in the last year (since XXXX)? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, please list countries and travel dates: Country: _____ Start date: __/__/____ End date: __/__/____ Country: _____ Start date: __/__/____ End date: __/__/____

Zika Community Survey – Individual Questionnaire

Were you born or lived for several years outside the United States?

Yes No Unknown

If yes, where? _____

Medical Information

Since XXXX, have you had any of these symptoms? We are talking about symptoms that would have been new for you, not long-standing problems.

Fever Yes No If yes, first date with this ___/___/___
How many days did it last? _____

(Note, here we would count their report of subjective fever. Interviewer, please use calendar aid)

Rash Yes No If yes, first date with this ___/___/___
How many days did it last? _____

(here we are NOT asking about a rash that was just on one arm or one leg, like poison ivy)

Conjunctivitis (redness of the white part of the eyes)
 Yes No If yes, first date with this ___/___/___
How many days did it last? _____

(here we are NOT asking about red, itchy eyes that you may know you get because of allergies)

Joint Pain Yes No If yes, first date with this ___/___/___
How many days did it last? _____

(here we are NOT asking about pain that was definitely from an injury)

Other Symptoms Yes No
If yes, list symptoms and onset dates:

For this illness, did you go to a clinic/hospital to be checked? Yes No

If yes, date of visit ___/___/___

What did the doctor/nurse decide that you had? _____

(Use this additional space if more than one episode, or additional notes)

For females aged ≥ 12 years and < 45 years: Are you pregnant or think you might be pregnant?

Yes No Unknown

If yes, approximate month of pregnancy? ____

Information related to blood and urine specimens and interpretation of results
Thank you for your willingness to participate in this survey. Based on your responses (or the location of your residence), you might have been exposed to Zika or a mosquito-borne infection. We would like to offer testing if you allow blood and urine samples to be collected. Each person who is tested will be given the results of their test, and all results will be kept confidential. Would you like to have your blood and urine tested for Zika?
If NO blood or urine specimen is consented for: Thank you again for your willingness to provide the information. If we have any additional questions, is it okay to contact you again? <input type="checkbox"/> Yes <input type="checkbox"/> No (If yes, verify contact details on household list)
If blood or urine specimen is consented for, complete specimen collection form, and ask these additional questions: We would like to ask you a few more questions about your health so we can better understand your test results.
To the best of your knowledge, have you ever received these vaccines (these are vaccines that may be given to persons who travel out of the country): Yellow fever vaccine <input type="checkbox"/> No <input type="checkbox"/> Unsure <input type="checkbox"/> Yes, year of last dose _____ Japanese encephalitis vaccine <input type="checkbox"/> No <input type="checkbox"/> Unsure <input type="checkbox"/> Yes, year of last dose _____ Tick-borne encephalitis vaccine <input type="checkbox"/> No <input type="checkbox"/> Unsure <input type="checkbox"/> Yes, year of last dose _____
Has your doctor told you that you have any medical conditions that limit your ability to fight infections? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Are you taking any medications that suppress your immune system? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
In the past 2 months, did you receive a blood transfusion or organ transplant? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
For this last question, I will ask you to read it and point to the answer. In the last year, have you ever had unprotected sex with someone who had recently returned from a country where Zika has been spreading? For the purpose of this question, sex is defined as vaginal sex, anal sex, oral sex, or the sharing of sex toys. By recently returned, we mean a man who had returned within 6 months before the time you had unprotected sex or a woman who had returned within 2 months before the time you had unprotected sex. Your Answer: <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
Thank you very much for your willingness to answer these questions and provide blood and urine samples. We will next contact you directly about your results of the tests. It may take several weeks to get the final results.